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Intra-articular injection for pain relief in patients awaiting hip replacement

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Summary

A double blind randomised trial was carried out to ascertain whether intra-articular injections of saline, bupivacaine or bupivacaine plus triamcinolone would be of value in the relief of hip pain suffered by patients awaiting total hip replacement for osteoarthritis. The majority of patients had good pain relief for 1 month but in general this was not maintained and some patients were much worse after the injection.

Introduction

Many patients have to wait a long time, often years, for total hip replacement. The relief of their hip pain has been investigated using regional hip blockade *(1)*. This is a difficult technique requiring three injections and a large volume of local anaesthetic *(2)*. The purpose of this trial was to see if intra-articular infiltration could be of therapeutic benefit. This has been tried previously with lactic acid in an attempt to denervate the joint without success and with silicone *(3)* that was no more effective than saline in the knee joint *(4)*.

Patient selection and method

Patients awaiting total hip replacement for osteoarthritis were asked if they wished to take part in a trial to ease their pain while waiting. They were told that they would be given priority if their pain was worse. This resulted in 28 female and 7 male patients (reflecting the pattern of the waiting list) aged between 46 and 79 years on the trial.

The agents were randomly allocated and the surgeon was not aware which agent he was injecting. Post-injection assessments were made by another person.

One hour before the procedure the patients received 10 mg of omnopon intramuscularly. Under sterile conditions and with X-ray control a 19G 89 mm needle was inserted via an anterolateral approach. Skin infiltration with local anaesthetic was not used. The position of the needle was confirmed by injecting 3 ml of Conray 280. The patient then received either:

(a) 10 ml of bupivacaine 0.5%
(b) 10 ml of bupivacaine plus 20 mg of tramcinolone
(c) 10 ml of normal saline

Each patient received active and passive physiotherapy and hydrotherapy at 3 h post-injection and on the following two mornings. The patients were assessed on admission, just before injection, 15 min post-injection and then weekly for 4 weeks and then monthly. Assessment was on a standard form noting pain, activity, stability and movement on a grading of 1 to 5. Pain during the injection was also noted. The patients were maintained on their pre-injection analgesics. X-ray appearances were classified according to the classification of Charnley *(5)*.

Results

Of 36 patients injected, 1 patient in the saline group did not attend follow-up. Patients receiving bupivacaine enjoyed immediate pain relief for up to 6 h and during the period there was a slight improvement in their range of movement. This, however, was not maintained and the range of movement was subsequently unaltered.

For the first month there was good pain relief on activity and particularly at night for between 58% and 75% of patients in all groups. This improvement rapidly declined in patients receiving bupivacaine with and without steroid, leaving only 25% and 18% respectively with good relief at 3 months.

Some patients were much worse at 3 months, 25% in the bupivacaine group, 50% in the bupivacaine plus steroid group and only 8.5% in the steroid group. These patients were not followed up further and were admitted for hip replacement as soon as possible. Those patients who had good pain relief at 3 months were subsequently no worse than their pre-injection state. In the saline group 64% of patients had improvement at 1 month.

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TABLE I *Periods of pain relief*

	Bupivacaine					*Bupivacaine + Triamcinolone*					*Saline*				
Months	*1*	*2*	*6*	*9*	*12*	*1*	*3*	*6*	*9*	*12*	*1*	*3*	*6*	*9*	*12*
Improved	7	2	2	1		9	4	3	2	1	7	6	4	3	2
Unchanged	3	7				1	2				3	4	6		
Worse	2	3				2	6				1				

This was maintained better than in the other groups and only one patient was worse than his pre-injection state at the end. No patient had pain relief for longer than 1 year (Table I).

The results were analysed for patterns and showed some groups who did not enjoy pain relief:

(1) Those whose pain was classified as severe or disabling at the start
(2) Those whose symptoms had been present for more than 5 years
(3) Those who had a concentric type of arthritis on X-ray
(4) All patients who experienced pain at injection in the bupivacaine group and the saline group (this did not apply to patients in the bupivacaine plus steroid group).

Discussion

The three agents did not reliably give long-term benefit but some short-term relief was obtained. However, the trial was biased in that the proforma stated that they would be given priority if their pain was worse.

Intra-articular triamcinolone while providing temporary relief led to a worsening of the symptoms, supporting the view that steroid may be harmful in some joints *(6)*. Our results suggest that temporary anaesthesia of an arthritic joint does not confer any long-term benefit. Physiotherapy was used as an adjunct to see if movement of an anaesthetised joint had any long-term benefit but it seems possible that this may actually by harmful.

Patients in the saline group seem to fare better than those in the other groups. This may be due to simple dilution of intra-articular enzymes and debris.

While we identified certain factors indicating which patients were unlikely to benefit from intra-articular injections, we found no positive factors indicating which patients were likely to benefit. Although some patients had lasting relief, particularly of night pain, we do not feel that intra-articular injection has a therapeutic role in the long-term relief of arthritic hip pain.

References

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Notes on books

Modern Concepts in Neurotraumatology edited by Sten Lindgren. 158 pages, illustrated, paperback. Springer-Verlag, Vienna. DM 170.

Supplement 36 of Acta Neurochirugica gives the Proceedings of the 1st Scandinavian Symposium on Neurotraumatology held in Goteborg in 1985. All aspects of head injury, including epidemiology, management, outcome and pathology are covered in over 40 authoritative papers, each of which is fully referenced. Most of the papers are from Scandinavia but two are from the Department of Neurosurgery at Leeds General Infirmary.

Progress in Surgery: Volume 2 edited by I Taylor. 245 pages, illustrated, paperback. Churchill Livingstone, Edinburgh. £15.

Volume 1 of this new series was very well reviewed and there is little doubt that this second volume will be equally popular. Fifteen reviews on subjects as wide-ranging as neonatal surgical emergencies, parenteral nutrition, liver metastases, carotid endarterectomy and brain tumours. Essential reading for surgical trainees as well as much of interest for those who are fully established.

Manual of Rheumatology and Outpatient Orthopedic Disorders edited by J F Beary, C L Christian and N A Johanson. 2nd edition. 391 pages, illustrated, paperback. Little Brown, Boston. £9.95.

A pocketbook with a spiral ring binding containing an enormous quantity of information in short note form. Fully updated from the first edition published six years ago, it will prove of particular value to orthopaedic house officers and registrars.

Progress in Transplantation: Volume 3 edited by Peter J Morris and Nicholas L Tilney. 217 pages, illustrated. Churchill Livingstone, Edinburgh. £40.

The editors have again selected a variety of topics of general interest to the transplant community concentrating on subjects of clinical relevance. Chemical immunosuppression, cyclosporin, pancreatic transplantation, small bowel transplantation and skin changes in immunosuppressed transplant recipients are just some of the subjects discussed. Essential for the library shelves of all transplant departments.